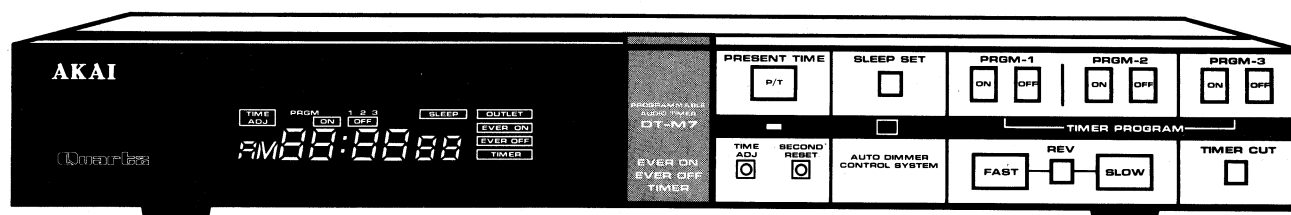
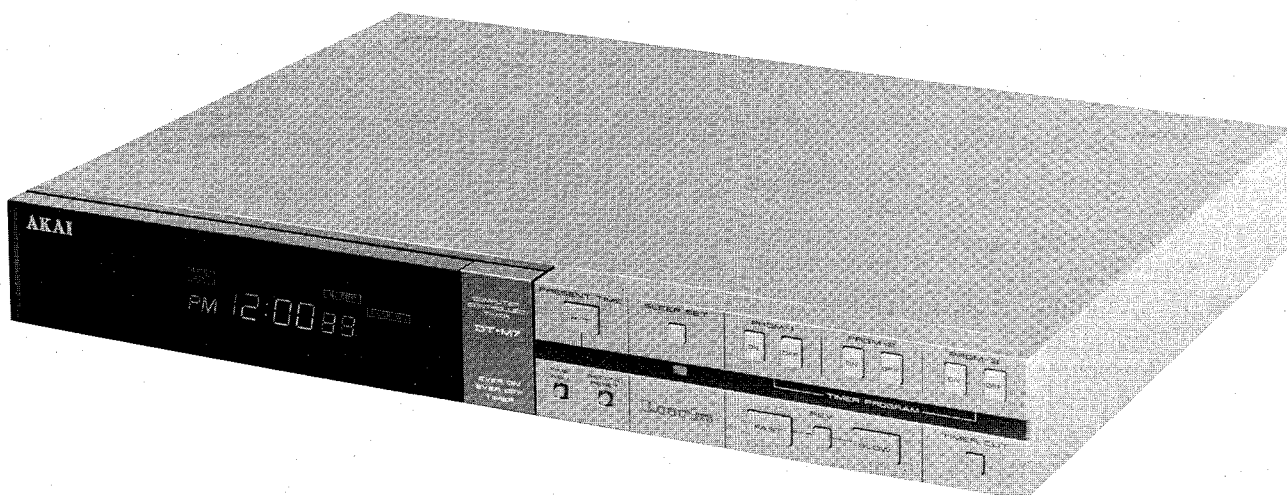


AKAI SERVICE MANUAL



AUDIO PROGRAM TIMER

MODEL **DT-M7**



AUDIO PROGRAM TIMER

MODEL **DT-M7**

SECTION 1	SERVICE MANUAL	3
SECTION 2	PARTS LIST	9
SECTION 3	SCHEMATIC DIAGRAM	14

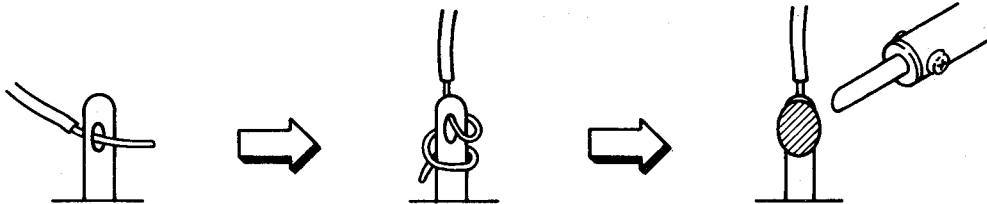
SAFETY INSTRUCTIONS

SAFETY CHECK AFTER SERVICING

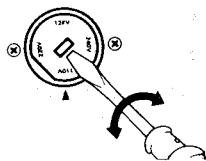
Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks, line-in-out jacks etc.)

PRECAUTIONS DURING SERVICING

1. Parts identified by the Δ symbol parts are critical for safety.
Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (Insulating Barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



- Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.
10. Voltage Conversion
Models for Japan, Europe, UK and Australia are not equipped with this facility. Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V, 220V or 240V as required. If your machine's voltage can be converted:
 - 1) Disconnect the power cord.
 - 2) Turn the VOLTAGE SELECTOR located on the rear panel with a screwdriver until the correct voltage is indicated.



SECTION 1

SERVICE MANUAL

TABLE OF CONTENTS

I. SPECIFICATIONS	4
II. DISMANTLING OF UNIT	5
III. CONTROLS	6
IV. ADJUSTMENT	6
1. STANDARD FREQUENCY OSCILLATOR ADJUSTMENT	6
V. COMPOSITION OF P.C BOARDS	7

For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

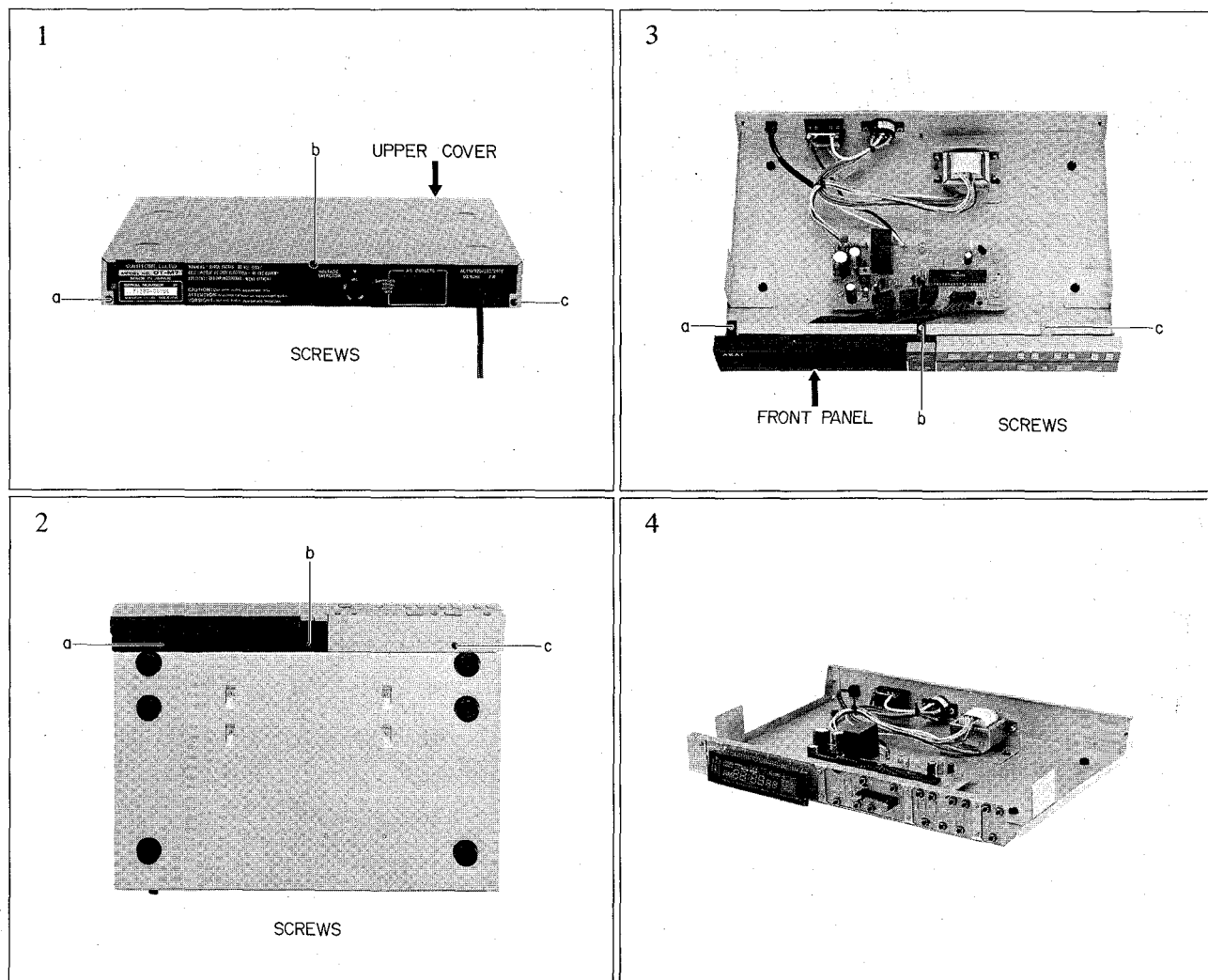
I . SPECIFICATIONS

TIMER ACCURACY	±15 Seconds Within One Month (approx. 20°C)
TIMER BASE	Quartz Oscillator
TIMER OPERATION ACCURACY	Less than 0.2 Seconds
TIMER DISPLAY	12 Hour Display (J, B, U MODELS) 24 Hour Display (E MODEL)
TIMER SYSTEM	Daily Type
TIMER SET PERIOD	1 minute to 23 hours and 59 minutes
SLEEP TIME PERIOD	1 minute to 1 hour and 59 minutes
AC OUTLET	Switched × 2 total 1200W Maximum (J Model) Switched × 2 total 600W Maximum (U Model) Switched × 5 total 200W Maximum (E Model) Switched × 5 total 3A Maximum (B Model)
POWER REQUIREMENTS	100V 50 Hz/60Hz (Japan) 220V 50 Hz (Europe except UK) 240V 50 Hz (UK and Austlaria) 110V/120V/220V/240V 50 Hz/60 Hz (U/T)
POWER CONSUMPTION	6W (JPN Model) 7W (U/T Model)
DIMENTIONS	350 (W) × 50 (H) × 254 (D) mm (13.8 × 2.0 × 10 inches)
WEIGHT	1.9 kg (4.2 lbs)

*For improvement purposes, specifications and design are subject to change without notice.

II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.



III. CONTROLS

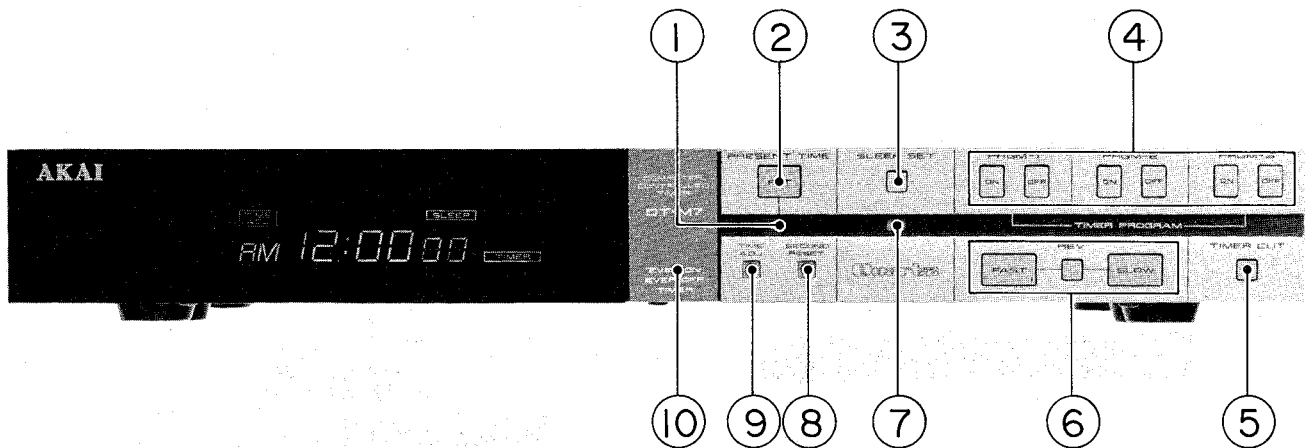


Fig. 3-1

1. LED INDICATOR
(Lights when the present time is displayed and flashes on and off at all other times.)
2. PRESENT TIME (P/T) BUTTON
(To display the present time.)
3. SLEEP SET BUTTON
(To set the sleep time.)
4. PROGRAM PRGM-1 TO PRGM-3 BUTTONS
(For programming.)
5. TIMER CUT BUTTON
(To stop timer controlled operation.)
6. FAST, REV AND SLOW BUTTONS
(To set the present time, sleep time, turn on time and turn off time.)
How to use:
To quickly advance the time → Depress the FAST button.
To slowly advance the time → Depress the SLOW button.
To quickly set back the time → Depress the REV and FAST buttons simultaneously.
To slowly set back the time → Depress the REV and SLOW buttons simultaneously.
7. SENSOR FOR THE AUTO DIMMER
8. SECOND RESET BUTTON
(To reset the second indicator to zero.)
9. TIME ADJ BUTTON
(To set the present time.)
10. TIMER MODE BUTTON
(To select the timer mode.)

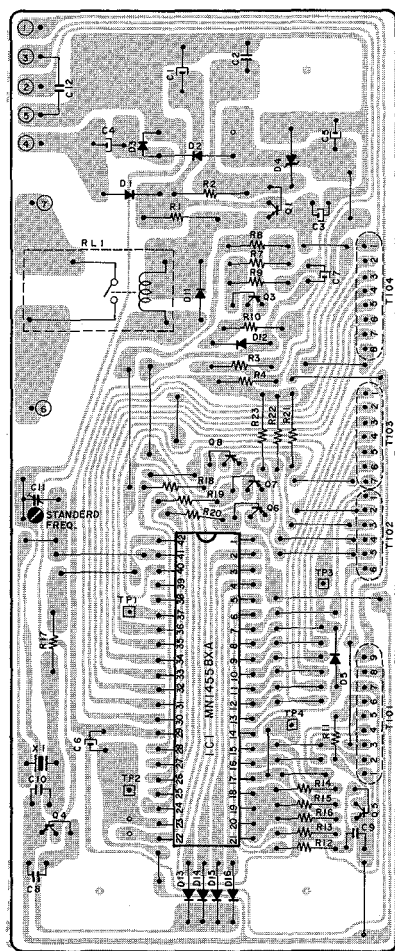
IV. ADJUSTMENT

4-1. STANDARD FREQUENCY OSCILLATOR ADJUSTMENT

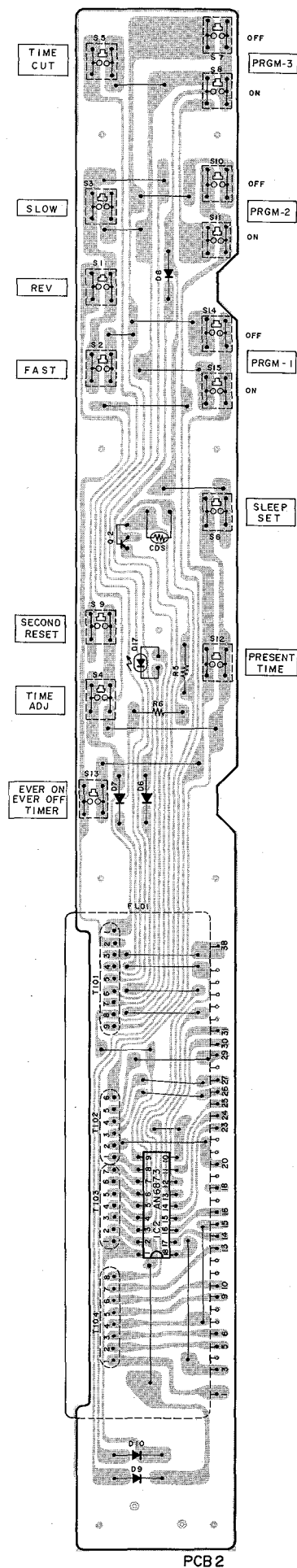
- 1) Connect a Frequency Counter between TP1 and GND.
- 2) Adjust the Trimmer Capacitor (C11), so that the Frequency Counter Reading is 128.00016Hz (7.81249 ms).

V. COMPOSITION OF PC BOARDS

1) MODEL DT-M7



PCB 1



PCB 2

SECTION 2

PARTS LIST

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RECOMMENDED SPARE PARTS	10
1. PCB1 BLOCK	11
2. PCB2 BLOCK	11
3. FINALY ASSEMBLY BLOCK	12
INDEX	13

Resistor and Capacitor which is not listed in this parts list, please refer to
COMMON LIST FOR SERVICE PARTS.

ATTENTION

1. When placing an order for parts, be sure to list the parts no., model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Parts List may be partially changed, please use this parts list for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List shows the parts that are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts". Select and order such parts from the "Common List for Service Parts".

2. The Recommended Spare Parts shows those parts in the Parts List which are considered particularly important for service.

Parts not shown in the Parts List and "Common List for Service Parts" will not be supplied in principle.

4. How to read list

a) Mechanism Block

b) P.C Board Block

2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

This reference numbers corresponds with symbol numbers of Schematic Diagrams.

5. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List. It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS

AVERTISSEMENT

⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

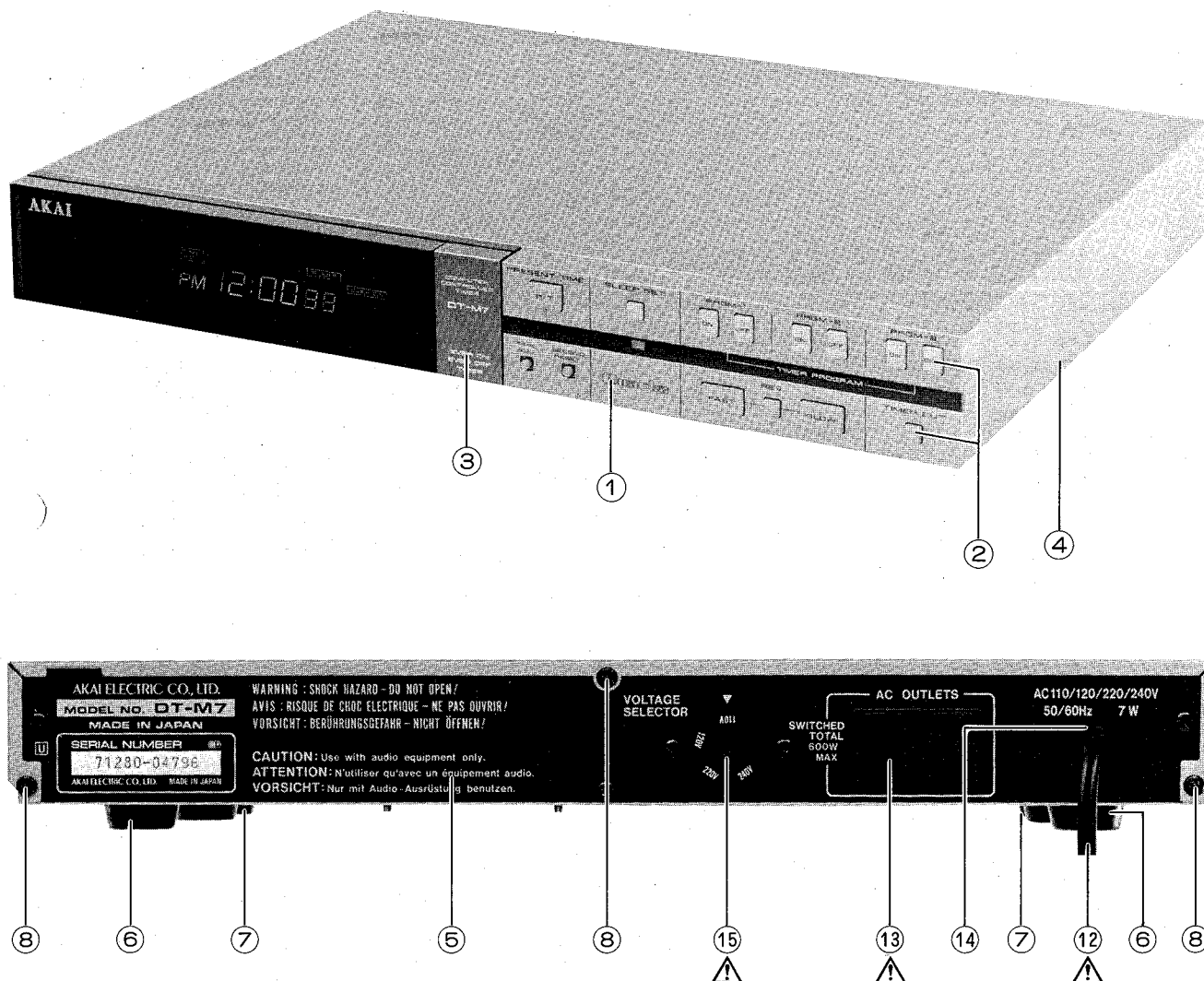
1. PCB 1 BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
1-IC1	EI-711472	IC MN1455BXA
1-Q1	ET-711469	TR 2SD856
1-Q3	ET-350335	TR 2SA564 Q
1-Q4	ET-706935	TR 2SC1383NC
1-Q5	ET-342696	TR 2SC828 Q,R
1-Q6	ET-350335	TR 2SA564 Q
1-Q7	ET-350335	TR 2SA564 Q
1-Q8	ET-350335	TR 2SA564 Q
1-D1	ED-711466	D SILICON S5277B
1-D2	ED-711466	D SILICON S5277B
1-D3	ED-711466	D SILICON S5277B
1-D4	ED-711480	D ZENER MA1056
1-D5	ED-711467	D SILICON MA150
1-D11	ED-711467	D SILICON MA150
1-D12	ED-711467	D SILICON MA150
1-D13	ED-711467	D SILICON MA150
1-D14	ED-711467	D SILICON MA150
1-D15	ED-711467	D SILICON MA150
1-D16	ED-711467	D SILICON MA150
1-D17	ED-711468	D LED LN442YP
1-RL1U	EP-708679	△ RELAY AR321173 (U,J)
1-RL1E	EP-708677	△ RELAY AR32118 (E,B)
1-C11	EC-706953	C S-FIX
1-X1	EI-711471	OSC X,TAL 4.1943 MHz

2. PCB 2 BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-IC2	EI-711473	IC AN6873N
2-Q2	ET-350335	TR 2SA564 Q
2-D6	ED-711467	D SILICON MA150
2-D7	ED-711467	D SILICON MA150
2-D8	ED-711467	D SILICON MA150
2-D9	ED-711467	D SILICON MA150
2-D10	ED-711467	D SILICON MA150
2-CDS	ET-706957	PHOTO SENSOR MKY-76C
2-FLD1	EM-344934	IND FL 6-MT-55ZYK
2-S1	ES-711474	SW TACT EVQ-QSB05K
2-S2	ES-711474	SW TACT EVQ-QSB05K
2-S3	ES-711474	SW TACT EVQ-QSB05K
2-S4	ES-711474	SW TACT EVQ-QSB05K
2-S5	ES-711474	SW TACT EVQ-QSB05K
2-S6	ES-711474	SW TACT EVQ-QSB05K
2-S7	ES-711474	SW TACT EVQ-QSB05K
2-S8	ES-711474	SW TACT EVQ-QSB05K
2-S9	ES-711474	SW TACT EVQ-QSB05K
2-S10	ES-711474	SW TACT EVQ-QSB05K
2-S11	ES-711474	SW TACT EVQ-QSB05K
2-S12	ES-711474	SW TACT EVQ-QSB05K
2-S13	ES-711474	SW TACT EVQ-QSB05K
2-S14	ES-711474	SW TACT EVQ-QSB05K
2-S15	ES-711474	SW TACT EVQ-QSB05K

FINAL ASSEMBLY BLOCK



3. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION	REF. NO.	PARTS NO.	DESCRIPTION
3-1	BD-711447	PANEL FRONT ASSY	3-12J	EW-306427	⚠ AC CORD 2 CORES KP-211, VFF J
3-2	SK-711449	RUBBER BUTTON SHEET OPERATION	3-12E	EW-313882	⚠ AC CORD 2 CORES KP-419C, LTCE-2F E
3-3	SK-711450	CENTER KNOB	3-12B	EW-313884	⚠ AC CORD 2 CORES GTBS-2F 24/0.20x2 B
3-4	BC-344323	COVER UPPER	3-13U	EJ-346248	⚠ SOCKET OUTLET S2T-732T-172 (U,J)
3-5U	SP-711452	PANEL REAR DT-M7(U)	3-13E	EJ-343981	⚠ SOCKET OUTLET S2-729T-100 E 2P (E)
3-5J	SP-711451	PANEL REAR DT-M7(J)	3-13B	EJ-346641	⚠ SOCKET OUTLET S2-741T-110 (B)
3-5E	SP-711454	PANEL REAR DT-M7(E)	3-14U	SZ-711475	STRAIN RELIEF 1056
3-5B	SP-711453	PANEL REAR DT-M7(B)	3-14E	SZ-711476	STRAIN RELIEF 4N4
3-6	SA-711455	RUBBER FOOT	3-15	ES-706968	⚠ SW SELECTOR (S17)
3-7	SA-305646	RUBBER FOOT (A) (BLACK)	3-16x	ES-708680	⚠ SW PUSH SDS3P (S16)
3-8	ZS-355511	BID30x06STL BNI	3-17x	EF-623125	⚠ FUSE SEMKO T 250V 2.50A
3-9x	ZS-572242	CTS26x06STL CMT	3-18x	EF-691007	⚠ FUSE SEMKO T 250V 3.15A
3-10x	ZS-555766	BID26x06STL CMT			
3-11x	BT-711460	⚠ TRANS POWER DT-M7(U)			
3-11xJ	BT-711459	⚠ TRANS POWER DT-M7(J)			
3-11xE	BT-711463	⚠ TRANS POWER DT-M7(E)			
3-11xB	BT-711462	⚠ TRANS POWER DT-M7(B)			
3-12U	EW-306428	⚠ AC CORD 2 CORES KP-205A, VFF J			

INDEX

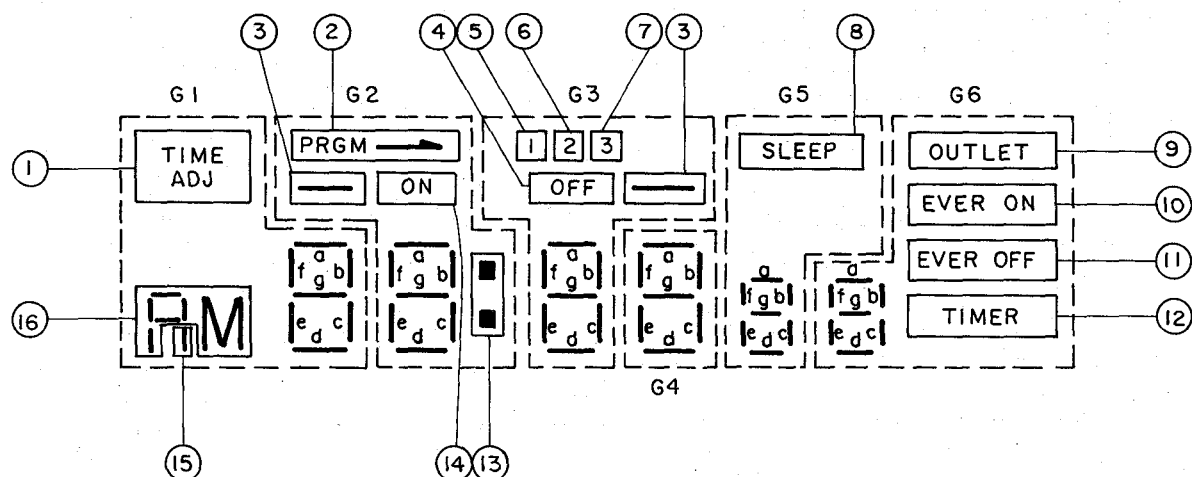
PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
BC-344323	3-4								
BD-711447	3-1								
BT-711459	3-11xJ								
BT-711460	3-11xU								
BT-711462	3-11xB								
BT-711463	3-11xE								
EC-706953	1-C11								
ED-711466	1-D3								
ED-711466	1-D1								
ED-711466	1-D2								
ED-711467	1-D16								
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ED-711467	1-D13								
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ED-711467	2-D9								
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ED-711467	2-D8								
ED-711467	2-D6								
ED-711468	1-D17								
ED-711480	1-D4								
EF-623125	3-17x								
EF-691007	3-18x								
EI-711471	1-X1								
EI-711472	1-IC1								
EI-711473	2-IC2								
EJ-343981	3-13E								
EJ-346248	3-13U								
EJ-346641	3-13B								
EM-344934	2-FLD1								
EP-708677	1-RL1E								
EP-708679	1-RL1U								
ES-706968	3-15								
ES-708680	3-16x								
ES-711474	2-S10								
ES-711474	2-S14								
ES-711474	2-S8								
ES-711474	2-S9								
ES-711474	2-S2								
ES-711474	2-S4								
ES-711474	2-S5								
ES-171474	2-S12								
ES-711474	2-S1								
ES-711474	2-S11								
ES-711474	2-S15								
ES-711474	2-S6								
ES-711474	2-S3								
ES-711474	2-S7								
ES-711474	2-S13								
ET-342696	1-Q5								
ET-350335	1-Q8								
ET-350335	1-Q7								
ET-350335	1-Q3								
ET-350335	1-Q6								
ET-350335	2-Q2								
ET-706935	1-Q4								
ET-706957	2-CDS								
ET-711469	1-Q1								
EW-306427	3-12J								
EW-306428	3-12U								
EW-313882	3-12E								
EW-313884	3-12B								
SA-305646	3-7								
SA-711455	3-6								
SK-711449	3-2								
SK-711450	3-3								
SP-711451	3-5J								
SP-711452	3-5U								
SP-711453	3-5B								
SP-711454	3-5E								
SZ-711475	3-14U								
SZ-711476	3-14E								
ZS-355511	3-8								
ZS-555726	3-10x								
ZS-572242	3-9x								

SECTION 3

SCHEMATIC DIAGRAM

1. BLOCK DIAGRAM AND TERMINALS DISCRIPTION OF MN1455B....15
2. TERMINALS DISCRIPTION OF DISPLAY16
3. DT-M7 N0830301A SCHEMATIC DIAGRAM17

2. TERMINALS DISCRPTION OF FL DISPLAY



Pin No.	Internal Connection	Pin No.	Internal Connection
1	Filament	20	SEGMENT g
2	NC	21	G3 (GRID 3)
3	G1 (GRID 1)	22	G4 (GRID 4)
4	NC	23	G4 (GRID 4)
5	SEGMENT a	24	G5 (GRID 5)
6	SEGMENT b	25	SEGMENT ①②⑥⑧⑨
7	G6 (GRID 6)	26	SEGMENT ⑦⑩⑮
8	G5 (GRID 5)	27	SEGMENT ④⑪⑭⑯
9	SEGMENT c	28	G5 (GRID 5)
10	SEGMENT d	29	SEGMENT ③⑫
11	G2 (GRID 2)	30	G6 (GRID 6)
12	NC	31	SEGMENT ⑤⑬
13	SEGMENT e	32	NC
14	G2 (GRID 2)	33	NC
15	SEGMENT f	34	NC
16	G3 (GRID 3)	35	G6 (GRID 6)
17	NC	36	NC
18	NC		
19	NC	38	Filament

NC = No connection

1. BLOCK DIAGRAM AND TERMINALS DISCRIPTION OF MN1455B

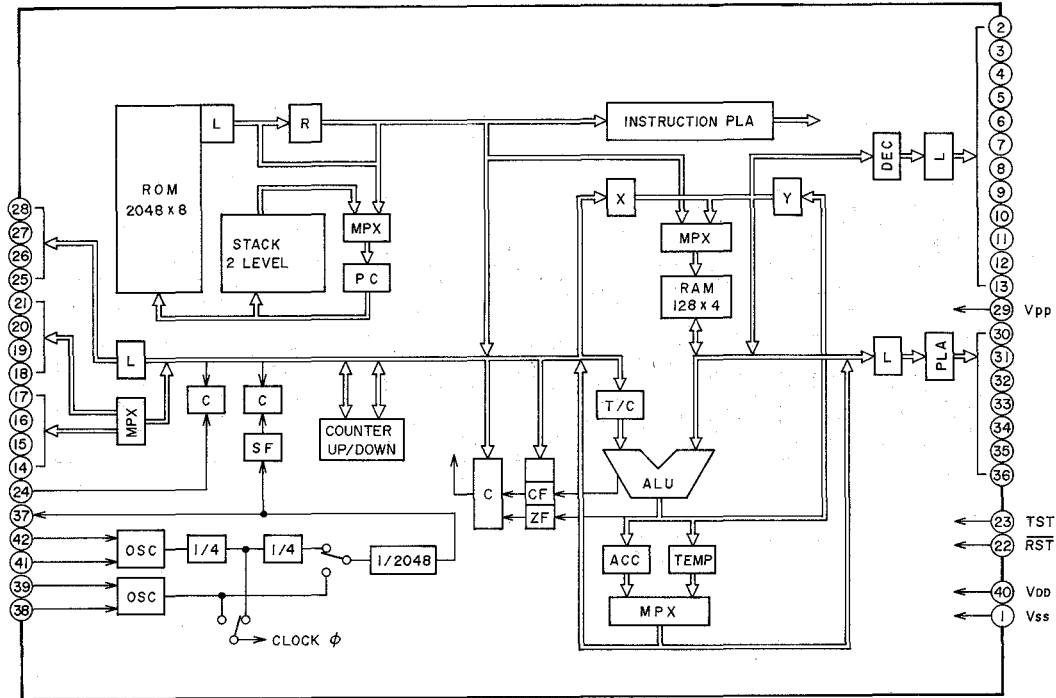
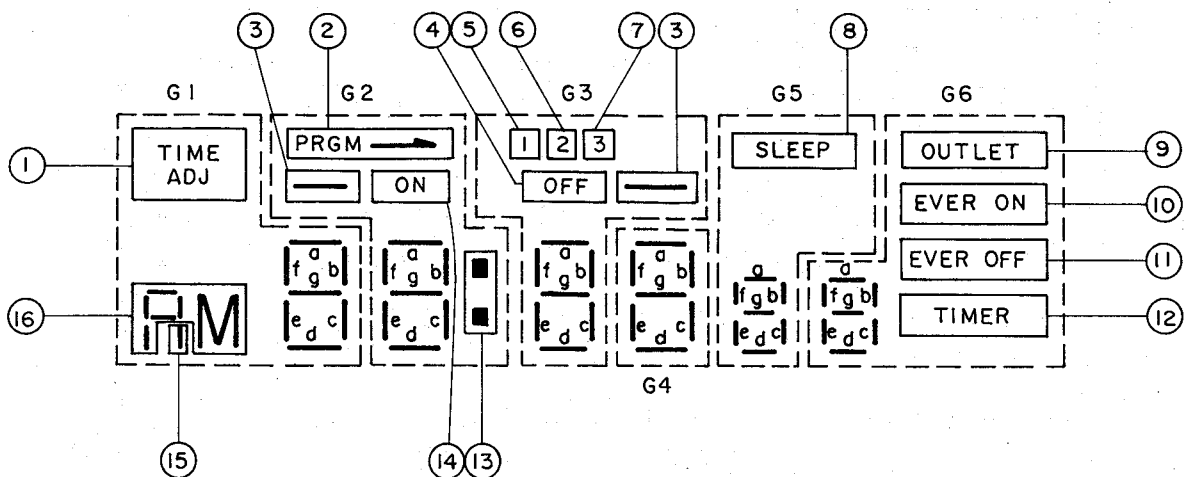


Fig. Block Diagram of IC MN1455B

Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	Vss	TO GND (0V)	22	RST	RESET at ACTIVE "L"
2	CO11	SLEEP output	23	TEST	TEST terminal, To Vss (GND)
3	CO10	TIMER 3 output	24	SNS0	Sencer INPUT, to VDD
4	CO9	TIMER 2 output	25	EO0	SEGMENT DATA { * 5 13 * 3 12 * 4 11 14 16 * 7 10 15
5	CO8	TIMER 1 output	26	EO1	
6	CO7	LED control present time indicating = "H" Others =	27	EO2	
7	CO6	SEGMENT DATA * 1 2 6 8 9	28	EO3	
8	CO5	TIMING DATA Output at ACTIVE "L"	29	VPP	SEGMENT DATA { * a * b * c * d * e * f * g
9	CO4		30	DO0	
10	CO3		31	DO1	
11	CO2		32	DO2	
12	CO1	KEY INPUT Input at ACTIVE "L"	33	DO3	
13	CO0		34	DO4	
14	A13		35	DO5	
15	A12	H = 12 L = 24:00	36	DO6	CLOCK MONITOR TERMINAL
16	A11		37	OSC128	
17	A10		38	X*TAL 4	
18	B13	Not use (connect to VDD)	39	X*TAL 3	
19	B12		40	VDD	+5 V
20	B11		41	X*TAL 2	X'tal
21	B10		42	X*TAL 1	

indicated * MARKS are Refer to FLD chart.

2. TERMINALS DISCRIPTION OF FL DISPLAY



Pin No.	Internal Connection	Pin No.	Internal Connection
1	Filament	20	SEGMENT g
2	NC	21	G3 (GRID 3)
3	G1 (GRID 1)	22	G4 (GRID 4)
4	NC	23	G4 (GRID 4)
5	SEGMENT a	24	G5 (GRID 5)
6	SEGMENT b	25	SEGMENT ①②⑥⑧⑨
7	G6 (GRID 6)	26	SEGMENT ⑦⑩⑮
8	G5 (GRID 5)	27	SEGMENT ④⑪⑭⑯
9	SEGMENT c	28	G5 (GRID 5)
10	SEGMENT d	29	SEGMENT ③⑫
11	G2 (GRID 2)	30	G6 (GRID 6)
12	NC	31	SEGMENT ⑤⑬
13	SEGMENT e	32	NC
14	G2 (GRID 2)	33	NC
15	SEGMENT f	34	NC
16	G3 (GRID 3)	35	G6 (GRID 6)
17	NC	36	NC
18	NC		
19	NC	38	Filament

NC = No connection

